

Two Strain Dengue Dynamics Incorporating Temporary Cross Immunity with ADE Effect

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Abstract : In this paper, a nonlinear host vector model has been proposed and analyzed for the two strain dengue dynamics incorporating ADE effect. The model considers that the asymptomatic infected people are more responsible for secondary infection than that of symptomatic ones and differentiates between them. The existence conditions are obtained for various equilibrium points. Basic reproduction number has been computed and analyzed to explore the effect of secondary infection enhancement parameter on dengue infection. Stability analyses of various equilibrium states have been performed. Numerical simulation has been done for the stability of endemic state.

Keywords : dengue, ade, stability, threshold, asymptomatic, infection

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